INDUSTRIAL ECONOMICS, INCORPORATED

2067 Massachusetts Avenue Cambridge, Massachusetts 02140 Telephone 617/354-0074 Facsimile 617/354-0463

MEMORANDUM

December 3, 2004

TO: Ted Maillett, U.S. Fish and Wildlife Service

FROM: Leslie Genova and Robert Unsworth, Industrial Economics, Incorporated
Dr. Aaron Harp, Berven, Harp & Associates

SUBJECT: Methodology for Evaluating Socioeconomic Impacts Associated with the Reintroduction of the Mexican Wolf

Cc: Dr. Allen Torell, New Mexico State University
Dr. Larry Van Tassell, University of Idaho
Dr. David Brookshire, University of New Mexico

Under Task Order x070, Industrial Economics, Inc. is preparing a socioeconomic analysis of the Reintroduction of the Mexican Wolf in the Blue Range Wolf Recovery Area for the Service. The purpose of this memorandum is to summarize discussions that took place regarding the socioeconomic analysis during kickoff meetings held in Springerville, AZ, on October 16, 2004, and Albuquerque, NM on October 18, 2004. The proposed methodological approach to be used in the socioeconomic analysis and an outline of next steps required to conduct the analysis are presented.

Background

Regulatory History

Relevant dates related reintroduction of the Mexican wolf:

? **Pre-1970**: Last confirmed sighting of wild Mexican wolf in Southwestern United States.

? **1976**: Mexican wolf listed as endangered subspecies under the ESA.

? **1978**: Entire gray wolf species in North America south of Canada listed as endangered under the ESA (listed as threatened in Minnesota).

? **1982**: Mexican wolf recovery plan published.

? **November 1996**: Service releases Final Environmental Impact Statement for the Reintroduction of the Mexican wolf within its historic range in the southwestern United States.

? **January 1998**: Service publishes final rule to establish a nonessential experimental population of the Mexican gray wolf in Arizona and New Mexico within the Blue Range Wolf Recovery Area (under section 10(j) of the ESA).

? **March 1998**: Service commences reintroduction of Mexican wolf.

? **June 2001**: Three-year review of the Mexican wolf reintroduction program completed.

? **December 2004**: Expected release of administrative and technical components of five-year review of Mexican wolf reintroduction program to the public.

? **March 2005**: Expected release of draft socioeconomic component of the five-year review of Mexican wolf reintroduction program to the public.

Mexican Wolf Reintroduction Program Overview

The Blue Range Wolf Recovery Area (BRWRA) encompasses 6,854 square miles of the Apache National Forest in southeastern Arizona and the Gila National Forest in southwestern New Mexico. Under the 1998 final rule, wolves may only be released into the primary recovery zone, a specifically defined area within the BRWRA in eastern Arizona. The Service will allow the wolf population to disperse into the remaining portion of the BRWRA, but will not allow wolves to establish territories on lands outside of the BRWRA (except on Tribal or private lands when landowners consent). The primary goal of the reintroduction program is to restore a "self-sustaining population of about 100 wild Mexican wolves distributed over 5,000 square miles of the BRWRA."[1] Under the 10(j) rule, private citizens may kill or injure wolves in defense of human life or when wolves are in the act of attacking livestock (with some restrictions).

[1] Paquet, Paul C. et al. "Mexican wolf recovery: Three year program review and assessment." Prepared by the Conservation Breeding Group for the Service. June, 2001.

Summary of Kick-off Meetings

On October 16, 2004, the research team met with representatives from the Service's Mexican wolf recovery program, Division of Economics, New Mexico Ecological Services Office and interested stakeholders in Springerville, Arizona to discuss the content and framework for the socioeconomic analysis. On October 18, we met with representatives from the Service's Mexican wolf recovery program, Division of Economics, Southwestern Regional Office, and New Mexico Ecological Services Office in Albuquerque, New Mexico to establish a schedule for the tasks ahead. These meetings helped identify activities of concern, available data and data limitations concerning the analysis of these activities, and issues related to land management activities within the BRWRA. We briefly summarize each meeting below. The substantive outcome of these meetings is captured in the next section, where we outline the proposed analytic approach in more detail.

? **Springerville, Arizona.** At this meeting, the research team provided information on a potential framework for the social and economic analysis. Stakeholders then provided information on activities that have been affected by wolf reintroduction program and characterized economic and social issues to examine. Meeting attendees also discussed difficulties that analysts may encounter during the analysis, including data limitations. In addition, members of the research team briefly toured the BRWRA.

? **Albuquerque, New Mexico**. This meeting served to discuss conclusions from the Springerville meeting, more firmly establish the Service's expectations for the final socioeconomic analysis product, and establish a schedule for the analysis. It was agreed that an issue of large concern was the social impacts of the rulemaking.

Analytic Approach

The goal of the socioeconomic analysis is to evaluate the local and regional social and economic impacts of the Mexican wolf reintroduction program that occurred between March 1998 and December 2003, and to compare those impacts to impacts estimated in the 1996 Environmental Impact Statement (EIS). This analysis should allow resource managers and the public to evaluate the social and economic implications of altering the reintroduction program. The analysis will use a two-part approach: 1) an assessment of economic impacts and comparison to the EIS; 2) an assessment of social impacts gathered from focus groups. The scope of the analysis is as follows:

? This analysis will primarily focus on regional social and economic impacts. As part of this effort, the analysis will characterize the regional economy, population characteristics and community and institutional structures for the study area.

? This analysis will focus on impacts in the five counties that contain lands within the BRWRA: Catron, Grant, and Sierra Counties, New Mexico; Greenlee and Apache Counties, Arizona, including affected Tribal lands. To the extent that community-level data is available, it will be utilized. In general, results will be presented at the most specific level feasible, but will be largely data-driven.

? The analysis will be retrospective and will focus on identifying potential social and economic impacts for the period of the five-year review.

? This analysis will also evaluate the relevance and quality of available research studies related to the attitudes, social or economic impacts, and/or value of wolves or wolf reintroduction from other areas.

Economic Impact Assessment:

This analysis will focus on comparing the level of economic activity in various sectors after wolf reintroduction to activity levels prior to wolf reintroduction. As part of this effort, the analysis will compare results to the estimates included in the EIS to identify significant differences. Specifically, this analysis will 1) characterize changes to the regional economy since 1996; 2) describe the scope and issues of economic sectors significantly affected by the reintroduction of the Mexican wolf; 3) discuss if any data indicate that the reintroduction of the Mexican wolf has played a role in changes to the affected economic sectors and whether this has had an effect on the regional or local economy; and 4) quantify the extent of such impacts, to the extent possible. Note that, in addition to potential impacts from wolf reintroduction, drought and other factors contributed to changes in the regional economy over the study period, and it is anticipated that assigning the cause of change will be difficult.

Because industries in a geographic area are interconnected, the contribution of any one industry may have proportionally larger effects on regional output and employment. To fully capture these "multiplier" effects, we will use MicroIMPLAN (IMpact Analysis for PLANning), an input/output model designed by the U.S. Forest Service, when appropriate. The decision as to whether to apply IMPLAN will depend on the outcome of the initial impact analysis (i.e., whether it is possible to model a change in output in any given industry). Based on initial assessment and activities identified in the EIS, focus areas will include impacts on livestock grazing, outfitters and guides, tourism, conservation activities, and Tribes. Exhibit 1 presents a brief summary of our proposed approach for each activity.

While the analysis will focus on impacts to specific sectors in the five county analysis area and the regional economy, we will also briefly summarize the existing economic literature on general public attitudes and perceptions regarding wolf reintroduction. This review will consider the quality of these existing studies, as well as the applicability of these studies to the case of the Mexican wolf.

In addition to Industrial Economics staff, this analysis will utilize expertise from three experts in the fields of economics:

? Dr. Larry Van Tassell, Agricultural Economist, University of Idaho, will serve as a technical advisor and peer reviewer on economic analysis. Dr. Van Tassell currently serves as the Director of the Western Agricultural Economics Association, and specializes in assessment of farm and ranch management, production economics, and range economics.

? Dr. Allen Torell, Agricultural Economist, New Mexico State University, will serve as a technical advisor and peer reviewer on economic analysis. Dr. Torell's work includes extensive research on the economics of livestock production and analysis of policies that affect rangelands.

? Dr. David Brookshire, Natural Resource Economist, University of New Mexico, will serve as a technical advisor and peer reviewer on economic analysis. Dr. Brookshire is a professor of economics, specializing in natural resource, natural hazard, and environmental economics, particularly pertaining to public policy.

Social Impact Assessment:

The social impact assessment (SIA) will identify groups affected by wolf reintroduction. Participants will be chosen using a restricted snowball technique, based on their previous or ongoing involvement in public wolf recovery efforts. Based on initial document review and input at the stakeholder meetings, we plan to utilize five focus groups in the study area: livestock producers, outfitters and guides, local governments, tourism and conservation groups, and Tribal representatives. Participants will include people with various economic, social and cultural stakes in wolf reintroduction. These focus groups are intended to use a structured discussion of the wolf reintroduction to generate description and discussion of concrete changes to social relationships for individuals, families, communities and local institutions that have occurred since wolf reintroduction. Relevant impacts that emerge will be evaluated within the standard SIA framework. This evaluation will also involve the use of secondary data on local social changes over the reintroduction period such as U.S. census data and existing public attitude and perception research.

Dr. Aaron Harp, Rural Sociologist, Berven Harp and Associates, will conduct the social impact assessment. Dr. Harp has extensive experience working on local and regional social impact assessments of policy changes, particularly those involving public lands.

Exhibit 1. Tentative Categories of Social and Economic Impact and Approach to Socioeconomic analysis that will be considered in the Socioeconomic Analysis	
Activity	**Approach**
Livestock grazing	Conduct focus group with ranch and livestock representatives to identify potential social and economic impacts of wolf reintroduction on individuals, families, communities, or others involved in or affected by livestock grazing.
	Gather existing economic data to identify trends in livestock use of BRWRA areas, livestock depredation rates, costs of livestock production, income and employment within the local industry, dependence on Federal lands grazing. Utilize GIS resources to assess affected allotments. Run input-output model, IMPLAN, if appropriate.
	Data sources: NASS data; New Mexico/Arizona Agricultural Statistics; USFS permit data; USDA Wildlife Services database; Service 5-year review data; Defenders of Wildlife livestock compensation data; published studies on depredation rates in New Mexico/Arizona, as well as other wolf reintroduction areas; GIS data of land ownership, allotment boundaries, NOAA drought and weather data.
Outfitters and guides	Conduct focus group with outfitters, guides, and recreationists to identify potential social and economic impacts of wolf reintroduction on individuals, families, communities, or others involved in or affected by outfitting and guiding.
	Gather existing economic data to identify recent changes to cost of operations, income and employment, trip expenditures in local area, hunting success rate, out of state visitation, permits. Run input-output model, IMPLAN, if appropriate.
	Data sources: NM Game Commission permit/use data, AZ Game and Fish, Service 5-year review (record of wolf/human interactions and instances of wolves injuring/killing dogs), USDA Wildlife Services database, literature review of impacts on outfitters, guides, and hunting activities in New Mexico/Arizona, as well as other wolf reintroduction areas.
Local governments	Conduct focus group with local government officials to identify potential social impacts of wolf reintroduction on individuals, families, communities, local government relations with other institutions, or others involved in or affected by local government activities.
	Gather demographic data on local communities, including employment, income, and population.
	Data sources: US Census data, New Mexico and Arizona Census data, literature review of impacts on local economy in New Mexico/Arizona, as well as other wolf reintroduction areas.
Tourism/Conservation activities	Conduct focus group with tourism, conservation and environmental groups to identify potential social impacts of wolf reintroduction on individuals, families, communities, or others involved in these activities.
	Gather existing data on expenditures by the Service and cooperating agencies on wolf conservation program, expenditures of visitors in local area resulting from wolf.
	Data sources: USFS visitation data, literature review of impacts on tourism/conservation in New Mexico/Arizona, as well as other wolf reintroduction areas.
Tribes	Meet with Tribal representatives from White Mountain Apache and San Carlos Tribes to identify potential social impacts of wolf reintroduction on individuals, families, communities, tribal cultures, relations with other institutions, etc.
	Data sources: Published information, interviews with Tribal members, U.S. Census data.